CONTENTS

Number 1

A. M. POSNER and J. W. BOWDEN. Adsorption isotherms: should they be split? 1

D. J. CAMPBELL, J. V. STAFFORD and P. S. BLACKWELL. The plastic limit, as determined by the drop-cone test, in relation to the mechanical behaviour of soil 11

C. E. MULLINS and A. FRASER. Use of the drop-cone penetrometer on undisturbed and remoulded soils at a range of soil–water tensions 25

B. V. KAVANAGH, A. M. POSNER and J. P. QUIRK. Effect of adsorption of phenoxyacetic acid herbicides on the surface charge of goethite 33

RACHEL LEVY. Precipitation of carbonates in soils in contact with waters undersaturated or oversaturated in respect to calcite . . . 41

J. R. SANDERS and C. BLOOMFIELD. The influence of pH, ionic strength and reactant concentrations on copper complexing by humified organic matter 53

R. J. DOWDELL and C. P. WEBSTER. A lysimeter study using nitrogen-15 on the uptake of fertilizer nitrogen by perennial ryegrass swards and losses by leaching 65

D. S. POWLSON. The effects of grinding on microbial and non-microbial organic matter in soil 77

D. DENT. Acid sulphate soils: morphology and prediction 87

A. S. MASHHADY, M. REDA, M. J. WILSON and R. C. MACKENZIE. Clay and silt mineralogy of some soils from Qasim, Saudi Arabia . 101

E. L. BIRSE. Suggested amendments to the world soil classification to accommodate Scottish mountain and aeolian soils 117

D. A. MACLEOD. The origin of the red Mediterranean soils in Epirus, Greece 125

I. C. GRIEVE. Some contrasts in soil development between grassland and deciduous woodland sites 137

A. W. LIMMER and A. T. WILSON. Amino acids in buried paleosols . 147

Number 2

I. G. BURNS. Influence of the spatial distribution of nitrate on the uptake of N by plants: A review and a model for rooting depth . . 155

I. G. BURNS. A simple model for predicting the effects of leaching of fertilizer nitrate during the growing season on the nitrogen fertilizer need of crops 175

I. G. BURNS. A simple model for predicting the effects of winter leaching of residual nitrate on the nitrogen fertilizer need of spring crops 187

J. S. HEWITT and A. R. DEXTER. Effects of tillage and stubble management on the structure of a swelling soil 203

M. MCGOWAN and J. B. WILLIAMS. The water balance of an agricultural catchment. I. Estimation of evaporation from soil water records 217

M. MCGOWN and J. B. WILLIAMS. The water balance of an agricultural catchment. II. Crop evaporation: seasonal and soil factors . 231

M. MCGOWAN, J. B. WILLIAMS, and J. L. MONTEITH. The water-balance of an agricultural catchment. III. The water balance . . 245

K. A. SMITH. A model of the extent of anaerobic zones in aggregated soils, and its potential application to estimates of denitrification . . 263

G. ANDERSON, J. D. PIDGEON, H. B. SPENCER, and R. PARKS. A new hand held recording penetrometer for soil studies . . . 279

B. W. BACHE and CHRISTINA IRELAND. Desorption of phosphate from soils using anion exchange resins 297

KOJI WADA and YUTAKA OKAMURA. Electric charge characteristics of Ando A_1 and buried A_1 horizon soils 307

T. M. BURGESS and R. WEBSTER. Optimal interpolation and isarithmic mapping of soil properties. I. The semi-variogram and punctual kriging 315

T. M. BURGESS and R. WEBSTER. Optimal interpolation and isarithmic mapping of soil properties. II. Block kriging 333

R. J. A. JONES and J. TINSLEY. Hill land studies in the Grampian Region of Scotland. I. Effects of soil parent material, altitude and aspect on the herbage yields, composition and responses to fertilizer treatments in the Upper Don Basin 343

S. ELLIS. An investigation of weathering in some arctic-alpine soils on the northeast flank of Oksskolten, north Norway 371

G. A. RODGERS. Evaluation of potential substrates to monitor respiratory nitrate reductase activity in soils 387

Books on soil science recently received 397

Number 3

L. G. HOMSHAW. Freezing and melting temperature hysteresis of water in porous materials: application to the study of pore form . . 399

L. G. HOMSHAW and P. CAMBIER. Wet and dry pore size distribution in a kaolinitic soil before and after removal of iron and quartz . . 415

M. J. REEVE, D. G. M. HALL, and P. BULLOCK. The effect of soil composition and environmental factors on the shrinkage of some clayey British soils 429

PATRICIA WATERS. Comparison of the ceramic plate and the pressure membrane to determine the 15 bar water content of soils . . 443
HANS HENRIK CHRISTENSEN and ALAN M. POSNER. The interaction of phosphate with an anion exchange resin 447
SHIN-ICHIRO WADA and KOJI WADA. Formation, composition and structure of hydroxy-aluminosilicate ions 457
S. C. JARVIS and L. H. P. JONES. The contents and sorption of cadmium in some agricultural soils of England and Wales 469
SHIGETOSHI MURAYAMA. The monosaccharide composition of polysaccharides in Ando soils 481
S. P. DIXIT. Modification of a method to measure the electrophoretic mobility of clays 491
M. PAGLIAI, G. GUIDI, and M. LA MARCA. Macro- and micromorphometric investigation on soil-dextran interactions . . . 493
R. WEBSTER and T. M. BURGESS. Optimal interpolation and isarithmic mapping of soil properties III. Changing drift and universal kriging 505
A. J. KOPPI and E. A. FITZPATRICK. Weathering in Tertiary gravels in N.E. Scotland 525
W. A. ADAMS, M. A. RAZA, and L. J. EVANS. Relationships between net redistribution of Al and Fe and extractable levels in podzolic soils derived from Lower Palaeozoic sedimentary rocks 533
J. F. COLLINS and E. COYLE. Long-term changes in soil macro- and micromorphological properties under the influence of peat debris . 547
J. M. RAGG and R. HENDERSON. A reappraisal of soil mapping in an area of southern Scotland. Part I The reliability of four soil mapping units and the morphological variability of their dominant taxa . . 559
R. HENDERSON and J. M. RAGG. A reappraisal of soil mapping in an area of southern Scotland. Part II The usefulness of some morphological properties and of a discriminant analysis in distinguishing between the dominant taxa of four mapping units 573
J. D. PIDGEON. A comparison of the suitability of two soils for direct drilling of spring barley 581
J. H. A. MAIDA. The potassium status of Malawi soils 595

Number 4

G. D. TOWNER. Theory of time response of tensiometers . . . 607
R. H. NEWMAN, K. R. TATE. P. F. BARRON and M. A. WILSON. Towards a direct, non-destructive method of characterising soil humic substances using ^{13}C n.m.r. 623
J. R. SANDERS. The use of adsorption equations to describe copper complexing by humified organic matter 633

P. L. SANDERSON and W. ARMSTRONG. Phytotoxins in periodically waterlogged forest soils 643

D. P. STRIBLEY, P. B. TINKER and R. C. SNELLGROVE. Effect of vesicular-arbuscular mycorrhizal fungi on the relations of plant growth, internal phosphorus concentration and soil phosphate analyses 655

V. C. FARMER, J. D. RUSSELL and M. L. BERROW. Imogolite and proto-imogolite allophane in spodic horizons: evidence for a mobile aluminium silicate complex in podzol formation 673

G. J. OSBORNE, N. J. POOLE and ELIZABETH A. DREW. A method for studying microbial activity in intact soil cores 685

E. M. BRIDGES and C. P. BURNHAM. Soils of the State of Bahrain . 689

LETTER TO THE EDITOR

L. MADRID: Some errors found in the use of the Stern model for ion adsorption 709